Leak Detection System for Large Cryogenic Tanks

Objective

The leak detection system will be a PC based data acquisition/analysis system coupled with instrumentation suitable for ambient as well as cryogenic environments. The system will be compatible with GN_2, LN_2, Gh_e, Lh_e, GH_2, and LH2 environments. An appropriate controlled environment will form a fundamental portion of the detection system.

Why Needed

Tanks of all sizes, storage or habitable, inevitably leak. Quantifying the leak rate of these tanks helps determine fuel requirements, replenishment schedules, etc. Tank leakage is a highly non-linear process linking temperature, tank volume, and pressure, both internal and atmospheric. Due to the non-linear nature of the leakage process, physically characterizing the leak rate of tanks is a difficult task and therefore seldom attempted. This system will address the issues relevant to leakage of tank based systems, both propulsive and habitable, to derive the leak rate parameter.

Point of Contact

Clif Kirby / ED27
Phone: 256-544-1101
Email: clif.kirby@msfc.nasa.gov

Sponsor

In-house development